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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Claus Bischoff

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EXAMINER

VANAMAN, FRANK BENNETT

ART UNIT

PAPER NUMBER

3618

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07/06/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/532,380	Applicant(s) BISCHOFF ET AL.	
	Examiner Frank B. Vanaman	Art Unit 3618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 March 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 12-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 12-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Status of Application

1. Applicant's amendment, filed March 30, 2009, has been entered in the application. Claims 12-25 are pending.

Claim Rejections - 35 USC § 103

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
3. Claims 12-25 are rejected under 35 U.S.C. 103 as being obvious over Kinugasa et al. (US 5,924,406, cited previously) in view of Smit et al. (US 4,458,318). Kinugasa et al. teach a method for operating a motor vehicle having an engine which is operated at a desired set point (see figures 1, 7a, 7b) which is based on a set point speed ("X" axis) and set point torque ("Y" axis - note that various set points as specifically illustrated in figure 1 for the operation of the engine are characterized by unique values of speed and torque), the vehicle including a drive train whose purpose is to provide mechanical power (output of 112) and electrical power (output of 122), the drive train including a transmission (112), wherein a plurality of characteristic operating maps are provided (see figures 7A, 7B) the selection of the maps based on mechanical and/or electrical power by consumers distinct from the vehicle energy storage device (123), wherein the characteristic maps provide for the setting of an operating point based on at least kinematic (e.g., speed, 'X' axis, figures 7A, 7B) and dynamic (e.g., set-point torque, 'Y' axis, figures 7A, 7B) degrees of freedom, the energy storage device supplying a parameter indicative of its condition (energy stored in the storage device, understood to be analogous to a state of charge); the power requirement being determined by accounting for the available power in the storage device and the amount of power required by the consumers, the arrangement including the definition of a power stage (step [3], col. 6, lines 56-63, taking into account quantity ΔP and the condition of the energy storage device, wherein at least the measurement of ΔP serves as a factor in selecting the characteristic map), and wherein a variable representing the actual driving speed of the vehicle (note col. 7, lines 13-25, particularly lines 22-23) may be taken into

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account in the control of the auxiliary equipment, and thus, indirectly, the selection of characteristic map. See at least col. 5, lines 13-26, col. 5, lines 49-59, col. 6, lines 33-41, col. 6, lines 56-63 and col. 7, lines 13-25. The reference to Kinugasa, while teaching a transmission, which is understood to be controlled in order to actually function in the operation of the vehicle, fails to teach that the arrangement controls a transmission ratio set point. Smit et al. teach that it is quite old and well known to provide drive train parameters (360, 424, 427, 429) to determine a set condition based on speed (702) and command a setpoint transmission ratio (430). It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the transmission taught by Kinugasa et al., the control of which is not specifically described by Kinugasa et al., with a setpoint control as described by Smit et al., for the purpose of ensuring that the transmission is appropriately controlled based on vehicle operating conditions.

As regards claim 15 (and the limitations of claim 15 as incorporated into claim 24), the reference to Kinugasa et al. as modified by Smit et al. fails to explicitly teach that the energy storage device is charged and/or discharged as a function of the characteristic map. Kinugasa et al. teach that (a) the condition of the battery, and its ability to supply energy is taken into account in association with the determination of whether or not more power is required to meet the demands of the consumers (steps [3] and [4], col. 6, lines 56-65), and (b) the battery is charged with a resulting greater requirement of torque (col. 5, lines 17-26, change from T_2 to $T_2 + \Delta T$) from the engine driving the generator. Note that the battery capability is measured in step [3] and the map is changed if operation on the current map cannot be met by the combined energy supply available, which includes the battery's resources. This additionally constitutes at least an implicit teaching that the battery energy would be used to meet the demands. As such, it would have been obvious to one of ordinary skill in the art at the time of the invention to charge the battery or discharge the battery based on the characteristic map, for the purpose of meeting the power requirements.

As regards claim 22 (and the limitations of claim 22 as incorporated into claim 25), the reference to Kinugasa et al. as modified by Smit et al. fails to explicitly teach the system of Kinugasa et al. as applicable to a hybrid vehicle, further accounting for the

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speed and torque of a drive motor. It is well known in the automotive arts to provide a vehicle as a hybrid vehicle so as to take advantage of well known and well documented benefits in energy usage and combustible fuel conservation. As such, it would have been obvious to one of ordinary skill in the art at the time of the invention to apply the power management system and method taught by Kinugasa et al. as modified by Smit et al. to a hybrid vehicle having both an engine and an electric drive motor, for the well known advantages of conserving fuel required to operate the engine and/or reducing pollution. Further, if using such a method and apparatus in a hybrid vehicle, it would have been obvious to one of ordinary skill in the art at the time of the invention to take into account the analogous motor drive parameters (such as speed and torque) to those parameters of the engine which Kinugasa et al. initially anticipate measuring and using, so as to include the motor in the determination of the characteristic map, e.g., by taking into account at least the power drawn by the motor (as a consumer) and/or the power which may be delivered by the motor, when operating as a generator, under operating conditions such as regenerative braking.

As regards claim 23 (and the limitations of claim 23 as incorporated into claim 24), the reference to Kinugasa et al. as modified by Smit et al. fails to explicitly teach that the operating point is chosen to accommodate the electrical losses in power train drive power conversion without charging or discharging the battery. In that Kinugasa et al. initially teach that the choice of characteristic map is made based on a required power of the various power consumers and the engine output for generation is controlled based on the requirements of the consumers, it would have been obvious to one of ordinary skill in the art at the time of the invention to include a loss term (either mechanical and/or electrical) associated with power conversion in the drive train, and include that term in the calculation of power required of the engine, so as to ensure that losses do not unduly drain the storage device (e.g., battery).

Response to Comments

4. Applicant's comments, filed with the amendment, have been carefully considered. Applicant has asserted that the reference to Kinugasa et al. cannot

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anticipate the claims as now recited. The examiner agrees. Note the reference to Smit et al., now applied in direct response to applicant's amendment. Please further note that the transmission commanded set point which results from the use of Smit et al. is based on engine operating conditions including at least one of speed, and in that Kinugasa et al. teach engine set points based on speed and torque, the transmission set point which would result from the combined references would be based on at least the engine set point in at least in that the engine is specifically taught to operate at the described set points, to the breadth of applicant's actual claim recitations, which are quite notably broad. With the transmission ratio set by engine operating characteristics, which themselves are based on the use of set points on a characteristic map which is chosen in association with (or 'based on') at least one power consumption factor, the transmission ratio of the combination would resultantly be based on the conditions specified by the characteristic map, which, as was mentioned previously, is chosen based on required power.

Applicant has asserted that the choice of the characteristic maps is not based on required power. The examiner does not agree. Kinugasa et al. can operate using at least two different characteristic maps (as illustrated in figures 7A, 7B). The choice of operation in region 1 (using the map 7A) or an expanded region 1+2 (using map 7B) is explicitly taught to be based on the measurement of both the power reserve in the storage unit (corresponding to state of charge) and the requirements of other loads on the vehicle, generally described by P and/or ΔP referred to by Kinugasa et al. as the increasing amount (see col. 5, lines 55-59, for example). Operation in region 1 (as defined by the map in figure 7A) allows an increasing amount (i.e., an amount of power associated with operating other loads distinct from the battery or power storage device) which is shown by the length of the line segment AB (col. 6, lines 45-52). When the increasing amount is of a greater value (length of segment AC), the operation shifts to a map (figure 7B) which includes an operating region 1+2, which is different from region 1 as shown in the characteristic map of figure 7A. The shift to this map is specifically described at Kinugasa et al.'s disclosure in col. 6, lines 55-63. The cause for shifting is

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based on the required power of other loads: "When the output increasing amount ΔP is larger than the permissible increasing amount ΔL , namely the segment AC is longer than the segment AB and when the energy stored ... is less than predetermined energy, the engine operating re[g]ion is expanded to REGION 2 to cover the output increasing amount ΔP " [Kinugasa et al. at col. 6, lines 56-63; the permissible amount ΔL usable under operating conditions involving only Region 1 is specifically described with respect to the map of figure 7A, ΔP is specifically defined at col. 5, lines 55-59 as being associated with other loads distinct from the storage device, the change to operation in Region 1+2 is explicitly associated with the map of figure 7B]. As such, the characteristic map is chosen based on a required power associated with at least one required electrical power value, and it is entirely unclear why applicant would attempt to argue otherwise, unless applicant is intending to convince the examiner to read unclaimed limitations into the claims, which is, unfortunately, not proper in the prosecution of a patent application. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

As regards reading unclaimed limitations from the specification into the claims

From MPEP 2111:

During patent examination, the pending claims must be given their broadest reasonable interpretation consistent with the specification. In *re Hyatt*, 211 F.3d 1367, 1372, 54 USPQ2d 1664, 1667 (Fed. Cir. 2000). Applicant always has the opportunity to amend the claims during prosecution, and broad interpretation by the examiner reduces the possibility that the claim, once issued, will be interpreted more broadly than is justified. In *re Prater*, 415 F.2d 1393, 1404-05, 162 USPQ 541, 550-51 (CCPA 1969) The court explained that "reading a claim in light of the specification, to thereby interpret limitations explicitly recited in the claim, is a quite different thing from 'reading limitations of the specification into a claim,' to thereby narrow the scope of the claim by implicitly adding disclosed limitations which have no express basis in the claim." The court found that applicant was advocating the latter, i.e., the impermissible importation of subject

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matter from the specification into the claim.). See also *In re Morris*, 127 F.3d 1048, 1054-55, 44 USPQ2d 1023, 1027-28 (Fed. Cir. 1997).

As regards the taking of Official Notice, applicant is hereby invited to specify which feature has been explicitly asserted under Official Notice by the examiner and which specific facts associated with such an explicit assertion of Official Notice applicant believes to be within the personal knowledge of the examiner, and a fully responsive reply would be expected to clearly identify the explicit taking of Official Notice, or clearly explain why this comment is presented.

Many of the difficulties encountered in the prosecution of patent applications may be alleviated if each applicant includes, at the soonest possible time, claims varying from the broadest to which he or she believes he or she is entitled to the most detailed that he or she is willing to accept.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. *Graf et al.* (US 6,287,237) teach a control arrangement of specific pertinence to the instant application.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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6. Any inquiry specifically concerning this communication or earlier communications from the examiner should be directed to F. Vanaman whose telephone number is 571-272-6701.

Any inquiries of a general nature or relating to the status of this application may be made through either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A response to this action should be mailed to:

Mail Stop _____
Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450,

Or faxed to:

PTO Central Fax: 571-273-8300

F. VANAMAN
Primary Examiner
Art Unit 3618

/Frank B Vanaman/
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